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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,285	12/09/2003	Robert W. Dixon	STL11666	4958

7590 12/13/2005  
Seagate Technology LLC  
1280 Disc Drive  
Shakopee, MN 55379

EXAMINER

HUYNH, KIM T

ART UNIT PAPER NUMBER

2112

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/731,285	<b>Applicant(s)</b> DIXON, ROBERT W.	
	<b>Examiner</b> Kim T. Huynh	<b>Art Unit</b> 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-19 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/9/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Paulson (US Patent 6,112,319)

As per claim 1, Paulson discloses a method of requesting data from a host over a data bus comprising:

- comparing a first data write request identifying first data and second data to be written (col.7, lines 1-55 ie wherein each address/data cell represents a particular memory location for each write request) and a later received second data write request identifying fourth data and third data to be written, the third data overwriting the second data; (col.9, lines 1-9 and 41-44)
- sending a request to the host to transmit the first data, the third data and the fourth data over the data bus(fig.1, 105 data bus); and (col.5, lines 63-65)
- indicating to the host that the first data write request and the second data write request have been performed. (col.13, lines 59-65)

As per claim 2, Paulson discloses wherein sending comprises: sending a first request to the host identifying the first data write request and requesting the first data. (col.7, lines 1-55, col.11, lines 35-38 ie data cells 420-440 indicate w2, w4, w4)

As per claim 3, Paulson discloses wherein sending further comprises: sending a second request to the host identifying the second data write request and requesting the third data and the fourth data. (col.7, lines 1-55)

As per claim 4, Paulson discloses a method further comprising:

- receiving the first data, third data and fourth data; and (col.7, lines 1-18)
- buffering the first data, third data and fourth data on a write buffer in a sequence the data are to written to data storage media. (col.4, lines 36-67)

As per claim 5, Paulson discloses wherein indicating further comprises: deleting the first data write request and second data write request from a request queue. (col.12, lines 33-41)

As per claim 6, Paulson discloses a method further comprising:

- determining a sequence that the first data, third data and fourth data are to be written; (col.4, lines 36-63)

- sending a first request to the host identifying the first data write request and requesting the first data; (col.7, lines 1-55, col.11, lines 35-38 ie data cells 420-440 indicate w2, w4, w4)
- sending a second request to the host identifying the second data write request and requesting the third data; (col.7, lines 1-55, col.11, lines 35-38 ie data cells 420-440 indicate w2, w4, w4)
- sending a third request to the host identifying the second data write request and requesting the fourth data; and (col.7, lines 1-55, col.11, lines 35-38 ie data cells 420-440 indicate w2, w4, w4)
- sending the first request, second request and third request in the sequence that the first data, third data, and fourth data are to be written. (col.4, lines 36-67)

As per claim 7, Paulson discloses wherein indicating comprises:

- sending a first indication after receipt of the first data; and (col.13, lines 16-19, 59-65)
- sending a second indication after receipt of the third and fourth data. (col.13, lines 16-19, 59-65)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulson (US Patent 6,112,319) in view of Mackenthun et al. (US Patent 6,374,332)

As per claim 9, Paulson discloses a method of transferring data from a host to a disc drive over a bus comprising:

- queuing a plurality of data write requests including a first received data write request, each data write request identifying one or more logical block addresses (LBAs) to write associated data to on the disc drive; (col.7, lines 1-55 ie tracker routine routing each of write requests with respect to each data and address locations of each requests)
- sending at least one data transfer request to the host to transmit over the bus only the data associated with the first LBAs of the first data write request. (col.5, lines 63-65)

Paulson discloses all the limitations as above except determining first LBAs identified by the first received data write request that are not overwritten by later received data write requests in the plurality of data write requests. However, Mackenthun discloses method of preventing a previously-issued request from overwriting data provided by recently-issued request. (col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching

into Paulson's system so as to improve system of maintaining ache coherency in a data processing system. (col.1, lines 33-42)

As per claim 10, Paulson discloses all the limitations as above except repeating the determining operation for each of the plurality of data write requests to identify second LBAs in each data write request that are not overwritten by later received data write requests in the plurality of data write requests; and sending at least one data transfer request to the host for each data write request to transmit over the bus only the data associated with the identified second LBAs that are not overwritten by later received data write requests in the plurality of data write requests. However, Mackenthun discloses method of preventing a previously-issued request from overwriting data provided by recently-issued request. (col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching into Paulson's system so as to improve system of maintaining ache coherency in a data processing system. (col.1, lines 33-42)

As per claim 11, Paulson discloses the method further comprising:

- deleting the plurality of data write requests; and (col.12, lines 33-41)
- sending a notification that the plurality of data write requests have been performed. (col.13, lines 59-65)

As per claim 12, Paulson discloses the method further comprising: maintaining a sequential queue for receiving the plurality of data write requests while the disc drive is busy. (col.3, line 65-col.4, line 20)

As per claim 13, Paulson discloses all the limitations as above except wherein each data write request includes a tag that identifies the data write request, an offset that identifies an LBA, and a length and further comprising: including in each data transfer request a tag, an offset and a length identifying the data write request and LBAs that are not overwritten by later received data write requests. However, Mackenthun discloses method of preventing a previously-issued request from overwriting data provided by recently-issued request. (col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching into Paulson's system so as to improve system of maintaining cache coherency in a data processing system. (col.1, lines 33-42)

As per claim 14, Paulson discloses the method further comprising: sequencing the generated data transfer requests into a sequence that will result in the data being received in a logical order. (col.4, lines 36-67)



Paulson discloses all the limitations as above except generating all the data transfer requests for the data associated with the identified first and second LBAs that are not overwritten by later received data write requests in the plurality of data write requests prior to sending any of the at least one data transfer requests. However, Mackenthun discloses method of preventing a previously-issued request from overwriting data provided by recently-issued request.  
(col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching into Paulson's system so as to improve system of maintaining ache coherency in a data processing system. (col.1, lines 33-42)

As per claim 15, Paulson discloses wherein sending comprises: sending the generated data transfer requests in the sequence. (col.4, lines 36-67)

As per claim 16, Paulson discloses the method further comprising:

- determining a second received data write request that contains only LBAs that are overwritten by later received data write requests in the plurality of data write requests; and (col.4, lines 4-67)
- sending a notification to the host that the second data write request has been performed without receiving the data identified by the second data write request. (col.13, lines 59-67)

As per claim 17, Paulson discloses a bus-connected data storage device comprising: a queue for receiving a plurality of data write requests from a host computer, the data write requests identifying data to be written; (col.7, lines 1-55 ie tracker routine routing each of write requests with respect to each data and address locations of each requests) and

Paulson discloses all the limitations as the above except a means for comparing the data write requests in the queue and requesting only data identified by the data write requests that are not overwritten by later received data write requests in the queue. However, Mackenthun discloses method of preventing a previously-issued request from overwriting data provided by recently-issued request. (col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching into Paulson's system so as to improve system of maintaining cache coherency in a data processing system. (col.1, lines 33-42)

As per claim 18, Paulson discloses all the limitations as the above except wherein the means for comparing and requesting generates at least one data transfer request for each of the plurality of data write requests that contains data that is not overwritten by later received data write requests in the queue. However, Mackenthun discloses method of preventing a previously-issued

request from overwriting data provided by recently-issued request. (col.17, lines 52-66)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Mackenthun's teaching into Paulson's system so as to improve system of maintaining ache coherency in a data processing system. (col.1, lines 33-42)

As per claim 19, Paulson discloses wherein the means for comparing and requesting determines the appropriate sequence to send the data transfer requests in order to receive the data in an order the data is to be written. (col.3, line 65-col.4, line 20)

***Allowable Subject Matter***

5. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's claimed invention is deemed allowable over the prior art of record as the prior art fails to teach or suggest discloses wherein comparing comprises comparing a first data write request identifying first data and second data to be written, a previously received third data write request identifying fifth data to be written, and a later received second data write request identifying fourth data and third data to be written, the third data overwriting the second data and the fifth data if the data write requests were performed sequentially;

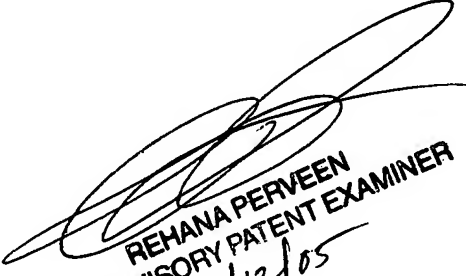
### **Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571)272-3635 or via e-mail addressed to [kim.huynh3@uspto.gov]. The examiner can normally be reached on M-F 9.00AM- 6:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached at (571)272-3676 or via e-mail addressed to [rehana.perveen@uspto.gov].

The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications and After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-2100.

Kim Huynh

Dec. 9, 2005

  
REHANA PERVEEN  
SUPERVISORY PATENT EXAMINER  
12/12/05